# Public Health Reports

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# Public Health Reports

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## NATIONAL INVENTORY OF NEEDS FOR SANITATION FACILITIES

### II. MILK PASTEURIZATION FACILITIES

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#### INTRODUCTION

Adequate supervision of the milk supply is one of the important functions of public health agencies. Of all the factors of man's environment, none is more important to his welfare than food. Of all foods, none is more important than milk. That milk should be clean and safe for human consumption is obvious. That its cleanliness and safety must be insured by governmental control has long been recognized. In the United States today such sanitary control is being exercised on a very considerable scale.

Of all the protective measures which are applied to milk, proper pasteurization is by far the most important single safeguard. Milk which has been properly produced, properly pasteurized, and protected against subsequent contamination, is safe milk. No raw milk can be guaranteed as safe. In most sections of the United States, pasteurized milk is now available, but there are still many areas in which there is no pasteurized milk. In these areas the public health responsibility of insuring a safe milk supply cannot be discharged until properly pasteurized milk is available in sufficient quantity. This section of the National Inventory of Needs for Sanitation Facilities is concerned, therefore, with an appraisal of the needs for additional pasteurizing facilities.

Before discussing the inventory in detail, it is desirable to sketch very briefly the past and present toll from milk-borne disease, the development and present status of pasteurization, and the public health results of pasteurization.

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## MILK-BORNE DISEASE IN THE UNITED STATES

Each year between 30 and 50 outbreaks of milk-borne disease are reported to the Public Health Service by State and local health authorities in the United States. For the 10-year period 1932–41, inclusive, 408 milk-borne outbreaks were reported, involving 16,305 cases and 213 deaths (*1*). The diseases included are shown in table 1.

TABLE 1.—*Milk-borne disease outbreaks reported by State and local health authorities as having occurred in the United States during the 10-year period 1932-41, inclusive, by diseases*

| Disease | Outbreaks | Cases | Deaths |
|---|---|---|---|
| Typhoid fever | 170 | 1,870 | 137 |
| Scarlet fever and septic sore throat | 100 | 8,288 | 69 |
| Food poisoning and gastroenteritis | 95 | 4,160 | 0 |
| Paratyphoid fever | 7 | 512 | 6 |
| Undulant fever | 12 | 134 | 0 |
| Dysentery | 10 | 944 | 0 |
| Diphtheria | 5 | 64 | 0 |
| Miscellaneous | 9 | 333 | 1 |
| Total | 408 | 16,305 | 213 |

It should be emphasized that table 1 is a compilation of reported *outbreaks* and that it does not include sporadic cases of typhoid fever, scarlet fever, septic sore throat, etc. It is logical to assume that a portion of these sporadic cases is due to milk. It should also be emphasized that this compilation does not include tuberculosis of bovine origin or infantile diarrhea, nor any significant amount of undulant fever, all of which are largely milk-borne, but which usually occur as sporadic cases rather than in epidemic form. As for undulant fever, it is difficult to estimate the actual incidence and the proportion of the cases and deaths which are milk-borne. For the 10-year period 1932–41, 26,759 cases of undulant fever and 910 deaths from this disease were reported in the United States. The number of such cases and deaths, by years, is given in table 2.

TABLE 2.—*Undulant fever cases and deaths reported in the United States during the 10-year period 1932–41*

| Year | Cases | Deaths | Year | Cases | Deaths |
|---|---|---|---|---|---|
| 1932 | 1,502 | 62 | 1938 | 4,379 | 116 |
| 1933 | 1,788 | 72 | 1939 | 3,501 | 121 |
| 1934 | 2,017 | 65 | 1940 | 3,310 | 116 |
| 1935 | 2,008 | 98 | 1941 | 3,484 | 71 |
| 1936 | 2,095 | 107 | | | |
| 1937 | 2,675 | 82 | Total | 26,759 | 910 |

According to the reports of several investigators (*2*) the percentage of undulant fever cases due to milk varies in different localities. In urban areas, where few persons come in contact with livestock or carcasses, the majority of cases are probably due to infected raw milk.

In rural areas, a large proportion of cases may be due to contact with livestock or carcasses. The assumption that one-half of the undulant fever cases and deaths in the United States are due to infected raw milk is believed to be conservative.

Estimates of the economic loss due to death and illness are incomplete measures of the true loss, which includes intangible quantities. Nevertheless, a rough estimate of the economic loss in the United States due to milk-borne disease has been attempted. The money value of a human life is assumed to be $20,000. This is a conservative average value based upon calculations by Dublin and Lotka (*3*) of the present worth of the net future earning capacities of individuals of different ages and different maximum incomes. The cost of a case of disease is influenced by a number of factors and average costs are difficult to estimate. Rough approximations have been made after consulting data given in publications of the Committee on the Costs of Medical Care (*4*, *5*). These costs, which include fees and charges for medical attention, nursing, hospitalization, and laboratory services, range from a total of $10 for gastroenteritis or food poisoning to $265 for typhoid fever and $325 for undulant fever. The money value of working time lost through sickness has also been estimated, assuming the value of one working day to be $6. Thus, the estimates of economic loss include three major factors: (1) the value of a life, (2) the cost of diagnosis and treatment of disease, and (3) the value of working time lost.

Using the estimating method described above, the annual economic loss due to milk-borne disease in human beings has been calculated. The estimated loss for each disease is shown in table 3.

TABLE 3.—*Estimated average annual economic loss from milk-borne disease in the United States, based on reports for the period 1932–41*

| Disease | Loss from deaths | Cost of diagnosis and treatment | Value of working time lost | Total economic loss |
|---|---|---|---|---|
| Typhoid fever | $280,000 | $50,000 | $67,000 | $397,000 |
| Paratyphoid fever | | 14,000 | 18,000 | 32,000 |
| Scarlet fever and septic sore throat | 140,000 | 14,500 | 40,000 | 194,500 |
| Diphtheria | 20,000 | 500 | | 20,500 |
| Dysentery | | 7,000 | 8,000 | 15,000 |
| Food poisoning and gastroenteritis | | 4,000 | 5,000 | 9,000 |
| Undulant fever | 920,000 | 435,000 | 803,000 | 2,158,000 |
| Total | 1,360,000 | 525,000 | 941,000 | 2,826,000 |

The total estimated annual loss is about $2,800,000. This is an average figure covering the 10-year period 1932–41 and is based upon the data given in tables 1 and 2. The cases and deaths from outbreaks of undulant fever and miscellaneous diseases listed in table 1 were not included in the estimate.

It is desired to emphasize that this estimate of economic loss from milk-borne disease is only a rough approximation. Greater precision would probably not be justified, because of the recognized incompleteness of the reports of both milk-borne disease outbreaks and undulant fever cases. The estimate is believed to be conservative, however, and it can be safely assumed that the actual economic loss is, in round numbers, at least $3,000,000 per year. (It is interesting to note that the annual economic loss due to brucellosis in cattle has been estimated to vary from $30,000,000 to a much higher figure, according to the United States Department of Agriculture, and that due to brucellosis in swine has been estimated as $10,000,000.)

As an illustration of the cost of an outbreak to a specific community, the 1938 outbreak of septic sore throat in an unnamed community of 1,880 inhabitants will be considered briefly. The outbreak consisted of 375 cases with 4 deaths and was caused by raw milk. Using the same unit cost figures as before, it is estimated that the total cost to the community through deaths, cases, and loss of working time was about $100,000. It will be shown later in this paper that it would cost only about $12,000 to provide a pasteurization plant to supply the average demand for pasteurized milk in a community of this size. Without detailed computations, it will at once be apparent that large milk-borne epidemics, such as that of typhoid fever in Montreal, Canada, in 1927, which involved approximately 5,000 cases and 500 deaths, cause a staggering financial loss to the community, and that even small outbreaks are worth preventing.

All milk-borne disease is preventable. In conducting effective milk sanitation programs, health authorities promulgate and enforce ordinances or regulations which quite properly include not one but several measures designed to prevent the transmission of disease by milk. These measures concern the health of the animals and the dairy personnel, the methods of operation, the design of the equipment and buildings, and the water supply and excreta disposal facilities. All these measures have definite value in promoting the cleanliness and safety of milk supplies but are not sufficient to guarantee safety. Examinations of cows and of milk handlers can be done at intervals only, and pathogenic organisms may therefore enter the milk for varying periods before the disease condition is discovered. Unless the milk is also pasteurized, it cannot be guaranteed as safe.

The vast majority of the milk-borne disease outbreaks reported to the Public Health Service are due to raw milk. These reports show that the risk of contracting disease from raw milk is approximately fifty times as great as from pasteurized milk (including milk which was only alleged to be "pasteurized milk") (*6*). That proper pasteurization can and does prevent the transmission of milk-borne disease

has been clearly proved to the satisfaction of health authorities by laboratory and commercial-scale experimental work, by epidemiologic methods, by statistical methods, and by animal experimentation. A classical illustration, and perhaps the most striking example of the immediate effect in the reduction of diarrheal diseases of infants by the pasteurization of milk, is that which occurred in a children's institution on Randall's Island, New York City, where a mortality rate of 44 was promptly reduced to 20 with no hygienic measures put into operation other than the pasteurization of all the milk (*7*). The literature is replete with other examples (*8*), one of the most recent of which is the experience in the Province of Ontario, Canada, during the first year following the adoption of the compulsory pasteurization act. According to Berry (*9*), the cases of undulant fever in 1939 were reduced by about 45 percent, the typhoid fever death rate was lowered about 50 percent, and the infant mortality was substantially reduced in areas under the act. Pasteurization is the most important single protective measure which can be applied to milk. For many years the Public Health Service has advised that all milk should be pasteurized or boiled before consumption. There is no doubt that the present extensive use of pasteurization is preventing a great deal of milk-borne disease.

### HISTORY AND EXTENT OF PASTEURIZATION

Although Pasteur did not originate the pasteurization of milk, the process which bears his name was based on his work during the period 1860–70 on the heating of wine and beer to prevent souring. In 1873, Jacobi in New York City advised that milk for infants be boiled in the feeding bottles. He seems to have been the first health expert to advocate that cows' milk be heated (*10*). In 1886, Soxhlet in Germany devised an apparatus for sterilizing milk in baby bottles in the home. Boiling for 40 minutes was advised. In 1893, Nathan Straus, in New York City, opened the first of many infant milk depots for dispensing sterilized milk. During the period 1890–1905 the milk industry developed continuous-flow milk heating equipment. Temperatures ranging from 158° F. to 165° F. were used, with indefinite, if any, holding times and inaccurate controls; this was "flash pasteurization." The prevailing opinion among the medical profession and health officials was that this treatment was an undesirable commercial process intended only to delay spoilage.

In 1906, Rosenau, then Director of the Hygienic Laboratory of the United States Public Health and Marine Hospital Service, determined the thermal death points of milk-borne pathogens, finding that 140° F. for 20 minutes was just sufficient for the destruction of the most heat-resistant one—the tubercle bacillus (*11*). This work and that of

other investigators inspired confidence in such low temperatures for pasteurization and was the foundation for the subsequent general acceptance of the process by health authorities.

The first apparatus for pasteurizing milk by the holding method on a commercial scale in the United States was installed in New York City in 1907 (*10*). The milk was heated to 140° to 150° F. and held for 30 to 45 minutes. The use of pasteurization increased rapidly during the following years. In 1922 the previous work on the thermal death points of milk-borne pathogens was confirmed by the "Endicott experiments," conducted at Endicott, N. Y., by a large group of experts, but numerous engineering defects in commercial pasteurizing apparatus were shown to exist (*10*). Subsequently, intensive studies were made of commercial pasteurizing equipment to determine the defects and to devise corrective measures. In these studies a prominent part was played by the Office of Milk Investigations of the United States Public Health Service, under the late Leslie C. Frank, Senior Sanitary Engineer (*12*). Later studies by the Public Health Service and other health agencies on high-temperature short-time pasteurization led to the acceptance of this method, which is a continuous-flow process distinguished from the old, discredited "flash" method by the accurate and sensitive controls and other safety devices.

As defined in the Milk Ordinance and Code recommended by the Public Health Service (*13*), pasteurization is the heating of *every particle* of milk or milk products to at least 143° F. and holding at this temperature for at least 30 minutes, or to at least 160° F. and holding for at least 15 seconds, in approved and properly operated equipment. The first method is known as the "holding method," and the second as the "high-temperature short-time method."

The use of pasteurized milk expanded rapidly and with the approval of increasing numbers of health officials after the installation of the first holding system in 1907. By 1924, 78.1 percent of the fluid milk sold in communities of more than 10,000 in the United States was pasteurized. For communities over 1,000, the percentage was 68.6. By 1936, the corresponding figures were 83.1 percent and 74.7 percent, respectively, according to a survey of milk control made by the Public Health Service (*14*). Although no more recent data have been collected by the Public Health Service, it is believed that the figures for 1943 would be somewhat greater than those given for 1936, but of the same general magnitude.

A high percentage of the milk supplies of the larger communities in the United States is pasteurized, but most of the milk in the smaller communities is still consumed raw. It is largely in small communities that milk-borne disease outbreaks occur. Table 4 shows, for communities of different sizes, the percentages of milk pasteurized, the

number of pasteurization plants per 1,000 population, and the average daily gallonages sold by the individual plants. All these data are for 1936 (*14*).

TABLE 4.—*Percentage of total market-milk supply protected by pasteurization, number of pasteurization plants per 1,000 population, and total gallons of market-milk sold daily per plant*

| Population group | Percent pasteurized | Plants per 1,000 population | Gallons sold daily per plant |
|---|---|---|---|
| 1,000–2,499 | 24.5 | 0.26 | 73.1 |
| 2,500–4,999 | 41.1 | .29 | 115.2 |
| 5,000–9,999 | 49.4 | .28 | 150.0 |
| 10,000–24,999 | 58.2 | .21 | 244.8 |
| 25,000–99,999 | 72.6 | .20 | 336.5 |
| 100,000–499,999 | 85.9 | .14 | 587.1 |
| 500,000 and over | 97.5 | .07 | 1,297.1 |
| Unweighted mean | 41.5 | .26 | |
| Weighted means: | | | |
| 1,000–10,000 | 39.3 | | |
| Over 1,000 | 74.7 | .17 | 399.4 |
| Over 10,000 | 83.1 | | |

Included in table 4 are many communities in which pasteurized milk was not available locally. Whereas pasteurized milk was available in more than 98 percent of the communities over 10,000, it was available in only 58 percent of those between 1,000 and 10,000. For the smallest population group for which data were obtained—1,000 to 2,499—the corresponding figure was 42 percent, and there is little doubt that the percentage would be considerably smaller for communities of less than 1,000.

These data indicate that there is need for additional pasteurizing facilities in the United States. Although it is probably true that existing plants could expand their delivery zones so as to serve some of the communities not now having pasteurized milk available, a number of new plants would be needed to serve adequately all such areas.

### ADDITIONAL PASTEURIZATION PLANTS NEEDED

Before attempting to make a detailed inventory, a number of assumptions were made. It was at once concluded that it would be impracticable to proceed on the basis that additional facilities were needed to provide for the pasteurization of the total national market-milk supply which is not now pasteurized. The results would have been of academic interest only. It was decided, instead, to determine the approximate number and sizes of plants needed to serve communities which have no pasteurized milk available. The real objective, from the public health standpoint, is to increase the proportion of the milk supply which is pasteurized. Where pasteurized milk is already available, health authorities are now, or should be, undertak-

ing educational measures to increase its use. These measures and other factors result in a continual increase in the demands for pasteurized milk, and the necessary increases in pasteurizing plant capacity are provided by the industry as a matter of course. Where pasteurized milk is not available, however, it was assumed that plants should be established in all communities or groups of adjacent communities which were large enough to provide reasonable assurance that a plant could operate at a profit.

It was estimated that a pasteurizing plant having an output of 100 gallons of milk daily was the smallest plant which could be expected to operate at a profit. This general assumption seems to be fairly widely accepted, although there are smaller plants in existence which doubtless are considered profitable. Producer-distributors constitute a large proportion of these smaller plants, and will be discussed later. It was next estimated that the smallest community which would support a 100-gallon plant has a population of about 2,000. This was based on data obtained in the 1936 survey of milk control (*14*). According to this survey, the consumption of fluid milk and milk products in communities of 1,000 to 10,000 population (which were considered to be the towns most likely to need the majority of the plants) was approximately 0.65 pint per capita per day, and the average percentage of market milk pasteurized *in the portion of the above communities which had some pasteurized milk sold locally* was 57.8. This figure was increased to 60 percent to allow for a slight increase in pasteurized milk consumption from 1936 to 1943. These figures indicate that the smallest community in which a potential market for at least 100 gallons of pasteurized milk daily would exist has a population of about 2,000.

To determine the number and location of communities needing pasteurization plants, the district offices of the Public Health Service were requested to obtain, from the milk sanitation authorities of each of the States in their district, a list of the communities which need plants, using the above criteria as a guide. Data were received from all States except Iowa, Pennsylvania, and Wyoming. A summary, by States, is given in table 7. For the three States which submitted no data, estimates were prepared by the Public Health Service. Existing pasteurizing plants were spotted on State maps, and all communities or groups of neighboring communities of more than 2,000 population which were more than 25 miles (the estimated maximum practicable delivery distance) from the existing plants were taken as needing plants. Data on the location of existing plants were obtained from a confidential list of dairy products plants furnished by a commercial source, from the list of communities in which the milk ordinance recommended by the Public Health Service is in effect (which lists the percentage of milk pasteurized in each community), and

from the replies of each city to the 1936 questionnaire survey of milk control.

The individual States were asked to include not only the incorporated cities of 2,000 or more which needed plants, but also groups of communities within a radius of approximately 25 miles having a total population of 2,000 or more. They were also asked to indicate the size of plant which, in their opinion, could be supported by each of the communities or groups of communities listed by them as needing plants. These data are tabulated by States in table 8. In general, table 8 represents the State's own estimates of the sizes of plants needed. However, some modifications were made where the State estimates seemed incorrect or were not sufficiently specific. The following notes indicate the listing policies which were generally followed:

1. Several States listed towns of less than 2,000 as needing plants. Plants were not included for any of these towns except (*a*) in Alaska, where certain unusual conditions existed, (*b*) when they could be combined with other small towns within about 25 miles to form a group having a total population of 2,000 or more, and (*c*) in a very few instances when the population was only very slightly less than 2,000.

2. In a few cases, plant sizes were selected partially on the basis of summer populations. In these cases, however, the plant capacity taken was somewhat less than the maximum summer populations would have called for.

3. If the State listed the needed plant as having a capacity of 200 gallons, for example, and did not state whether this was the minimum, average, or maximum capacity, the plant size used for this estimate was determined from the population of the community or group of communities.

### ESTIMATED COSTS OF NEEDED PASTEURIZING PLANTS

Pasteurization plant buildings must be specially designed to accommodate the usual operations. The buildings should be of good construction, preferably of masonry, with well-drained floors of concrete or other impervious material, generous lighting and ventilation, and designed specifically for milk plant use so as to provide proper separation of processes and to enable efficient and sanitary operation. The necessary equipment is of special design and includes milk handling equipment, bottle- and can-washing equipment, refrigeration equipment, boiler, etc. It is imperative that buildings and equipment meet high sanitation standards. Such standards are given in the Public Health Service Milk Ordinance and Code *(13)*.

Estimated costs were obtained in two steps. In the first step, plants of four different capacities were assumed, and detailed estimates were made for the following items: real estate, building, equipment,

trucks, garage and dry storage building, initial supplies, and contingencies. Building costs were made by first determining the size of building needed by carefully reviewing 35 individual building plans, and then by applying cubic-foot construction cost figures. The plans reviewed were prepared by the State health departments of North Carolina and Texas, the United States Department of Agriculture (*15*), and the Cherry-Burrell Corporation (*16*). The construction cost figures were based on unit-cost estimates obtained from a number of reliable sources, including the Public Buildings Administration and War Public Works, both in the Federal Works Agency, the architects in the hospital facilities section of the States Relations Division of the Public Health Service, and data in the Engineering News-Record. The unit-cost figures, which ranged from 45 cents to 55 cents per cubic foot, depending upon the building size, are considered adequate to cover the construction costs of well-built masonry pasteurization plants complying with the requirements of the Public Health Service Milk Ordinance and Code. The equipment costs were based on detailed costs for such equipment for plants of different sizes as given in U.S. Department of Agriculture Circular 99 (*17*), with minor modifications to insure compliance with the Public Health Service Milk Ordinance. The cost of trucks was based upon the probable number of delivery routes, and the cost of the garage and dry storage building was based on a structure of sufficient size to house all trucks and to provide adequate dry storage space for supplies. The costs of real estate, initial supplies, and the contingency allowance were not estimated in detail, but reasonable lump sum allowances were made. The resulting total costs were plotted as a function of the capacities of the respective plants, and a smooth curve was drawn through the four points. Table 5 shows the cost breakdown for these four plants. All costs are as of 1942.

TABLE 5.—*Estimated costs of pasteurization plants—breakdown*

| Item | Nominal plant capacity in gallons per day | | | |
|---|---|---|---|---|
| | 100 | 250–300 | 500 | 1,000 |
| Real estate | $500 | $1,000 | $2,500 | $5,000 |
| Building | 7,000 | 10,800 | 16,800 | 27,000 |
| Equipment | 5,500 | 7,500 | 15,000 | 27,000 |
| Trucks | 2,000 | 4,000 | 8,000 | 16,000 |
| Garage | 800 | 1,600 | 2,900 | 5,300 |
| Initial supplies | 500 | 750 | 1,000 | 2,000 |
| Contingencies | 200 | 350 | 800 | 1,700 |
| Total | $16,500 | $26,000 | $47,000 | $84,000 |

The second step in computing pasteurization plant costs followed the observation that of the four plants referred to above, each one has such a wide (assumed) capacity range that undue inaccuracies in

the total cost would result when plants of these specific sizes were allocated to specific communities. Accordingly, it was decided to provide for nine different sizes of plants instead of four, to cover the same approximate total range of capacity. The costs of these nine plants were estimated graphically from the curve referred to above, and the resulting data are given in table 6. (Attention is called to the fact that the maximum capacity figure shown for each plant is actually the estimated absolute maximum capacity, leaving no room for any further increase in output.)

TABLE 6.—*Estimated costs of pasteurization plants of different sizes*

| Plant capacity, gallons per day | Population to be served | Estimated cost | Plant capacity, gallons per day | Population to be served | Estimated cost |
|---|---|---|---|---|---|
| 100–125 | 2,000–2,500 | $12,000 | 500–600 | 10,001–12,000 | $43,000 |
| 125–200 | 2,501–4,000 | 16,500 | 600–700 | 12,001–14,000 | 49,000 |
| 200–300 | 4,001–6,000 | 23,000 | 700–800 | 14,001–16,000 | 56,000 |
| 300–400 | 6,001–8,000 | 29,000 | 800–1,000 | 16,001–20,000 | 68,000 |
| 400–500 | 8,001–10,000 | 36,000 | | | |

The detailed data regarding plant cost estimates, comprising about 40 pages, are on file in the office of the Milk and Food Unit of the Sanitation Section. Similarly, the detailed data regarding the specific communities reported as needing plants and the sizes of plants needed are on file in that office.

Table 7 lists by States the number of communities or groups of communities of different sizes in which pasteurizing plants are needed, and their total populations, according to the conditions and assumptions previously mentioned.

TABLE 7.—*Number of communities or groups of communities of specified sizes in which pasteurization plants are needed*

| State | Population range | | | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2,000–2,500 | 2,501–4,000 | 4,001–6,000 | 6,001–8,000 | 8,001–10,000 | 10,001–12,000 | 12,001–14,000 | 14,001–20,000 | Number | Population |
| Alabama | 2 | 9 | 9 | 5 | 0 | 0 | 0 | 0 | 25 | 110,011 |
| Arizona | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Arkansas | 0 | 0 | 2 | 4 | 0 | 1 | 2 | 0 | 9 | 74,377 |
| California | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3,235 |
| Colorado | 1 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 9 | 31,221 |
| Connecticut | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 9,450 |
| Delaware | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Florida | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 22,849 |
| Georgia | 7 | 18 | 11 | 6 | 1 | 1 | 1 | 0 | 45 | 203,200 |
| Idaho | 3 | 5 | 2 | 0 | 0 | 0 | 1 | 0 | 11 | 44,470 |
| Illinois | 8 | 11 | 2 | 1 | 0 | 0 | 0 | 0 | 22 | 65,284 |
| Indiana | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Iowa | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 7,811 |
| Kansas | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 20,311 |
| Kentucky | 1 | 7 | 2 | 4 | 0 | 0 | 0 | 0 | 14 | 61,778 |
| Louisiana | 3 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 11 | 38,655 |
| Maine | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 7,800 |
| Maryland | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Massachusetts | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Michigan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Minnesota | 5 | 7 | 4 | 0 | 0 | 0 | 0 | 0 | 16 | 49,714 |
| Mississippi | 5 | 5 | 6 | 2 | 0 | 1 | 0 | 0 | 19 | 82,462 |
| Missouri | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

TABLE 7.—*Number of communities or groups of communities of specified sizes in which pasteurization plants are needed*—Continued

| State | Population range | | | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2,000–2,500 | 2,501–4,000 | 4,001–6,000 | 6,001–8,000 | 8,001–10,000 | 10,001–12,000 | 12,001–14,000 | 14,001–20,000 | Number | Population |
| Montana | 4 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 24,770 |
| Nebraska | 4 | 10 | 6 | 1 | 0 | 0 | 0 | 0 | 21 | 73,717 |
| Nevada | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4,409 |
| New Hampshire | 1 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 7 | 25,718 |
| New Jersey | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| New Mexico | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 15,616 |
| New York | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| North Carolina | 6 | 5 | 5 | 2 | 0 | 2 | 0 | 1 | 21 | 105,476 |
| North Dakota | 4 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 33,207 |
| Ohio | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Oklahoma | 5 | 12 | 3 | 2 | 0 | 0 | 0 | 0 | 22 | 74,416 |
| Oregon | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pennsylvania | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 11,948 |
| Rhode Island | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| South Carolina | 0 | 2 | 5 | 3 | 1 | 0 | 0 | 0 | 11 | 60,025 |
| South Dakota | 7 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 12 | 36,857 |
| Tennessee | 4 | 11 | 5 | 3 | 0 | 0 | 0 | 0 | 23 | 87,353 |
| Texas | 14 | 22 | 3 | 4 | 1 | 1 | 2 | 0 | 47 | 183,836 |
| Utah | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 17,235 |
| Vermont | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Virginia | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Washington | 3 | 4 | 3 | 1 | 0 | 0 | 0 | 0 | 11 | 43,006 |
| West Virginia | 1 | 4 | 0 | 2 | 1 | 0 | 0 | 0 | 8 | 37,681 |
| Wisconsin | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 16,512 |
| Wyoming | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 10,162 |
| Alaska | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4,635 |
| Hawaii | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total: | | | | | | | | | | |
| Communities | 121 | 176 | 82 | 41 | 4 | 6 | 7 | 1 | 438 | |
| Populations | 265,372 | 551,105 | 399,840 | 279,316 | 35,095 | 63,527 | 88,541 | 16,411 | | 1,699,207 |

Table 8 lists by States the number of plants needed and their estimated total costs, according to the conditions and assumptions previously discussed.

TABLE 8.—*Number of pasteurization plants of specified sizes needed*

| State | Plant capacity (gallons per day) | | | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 100–125 | 126–200 | 201–300 | 301–400 | 401–500 | 501–600 | 601–700 | 701–1,000 | Number of plants | Estimated cost |
| Alabama | 2 | 17 | 6 | 0 | 0 | 0 | 0 | 0 | 25 | $442,500 |
| Arizona | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Arkansas | 0 | 0 | 2 | 4 | 0 | 2 | 1 | 0 | 9 | 297,000 |
| California | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 16,500 |
| Colorado | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 144,000 |
| Connecticut | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 48,000 |
| Delaware | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Florida | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 126,000 |
| Georgia | 9 | 16 | 12 | 6 | 1 | 0 | 1 | 0 | 45 | 907,000 |
| Idaho | 4 | 4 | 2 | 1 | 0 | 0 | 0 | 0 | 11 | 189,000 |
| Illinois | 10 | 10 | 2 | 0 | 0 | 0 | 0 | 0 | 22 | 331,000 |
| Indiana | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Iowa | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 40,500 |
| Kansas | 0 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 8 | 145,000 |
| Kentucky | 1 | 6 | 3 | 2 | 2 | 0 | 0 | 0 | 14 | 310,000 |
| Louisiana | 7 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 11 | 163,000 |
| Maine | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 29,000 |
| Maryland | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Massachusetts | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Michigan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Minnesota | 5 | 7 | 4 | 0 | 0 | 0 | 0 | 0 | 16 | 267,500 |
| Mississippi | 7 | 6 | 3 | 2 | 1 | 0 | 0 | 0 | 19 | 346,000 |
| Missouri | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Montana | 0 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 9 | 174,500 |
| Nebraska | 1 | 10 | 9 | 1 | 0 | 0 | 0 | 0 | 21 | 413,000 |

TABLE 8.—*Number of pasteurization plants of specified sizes needed*—Continued

| State | Plant capacity (gallons per day) | | | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 100–125 | 126–200 | 201–300 | 301–400 | 401–500 | 501–600 | 601–700 | 701–1,000 | Number of plants | Estimated cost |
| Nevada | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | $28,500 |
| New Hampshire | 4 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 7 | 110,500 |
| New Jersey | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| New Mexico | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 85,500 |
| New York | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| North Carolina | 6 | 5 | 5 | 2 | 0 | 2 | 0 | 1 | 21 | 481,500 |
| North Dakota | 4 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 180,000 |
| Ohio | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Oklahoma | 5 | 12 | 3 | 2 | 0 | 0 | 0 | 0 | 22 | 385,000 |
| Oregon | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pennsylvania | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 56,000 |
| Rhode Island | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| South Carolina | 0 | 2 | 5 | 3 | 1 | 0 | 0 | 0 | 11 | 271,000 |
| South Dakota | 7 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 12 | 186,000 |
| Tennessee | 4 | 11 | 5 | 3 | 0 | 0 | 0 | 0 | 23 | 431,500 |
| Texas | 14 | 22 | 3 | 4 | 1 | 1 | 2 | 0 | 47 | 893,000 |
| Utah | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 72,000 |
| Vermont | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Virginia | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Washington | 3 | 4 | 3 | 1 | 0 | 0 | 0 | 0 | 11 | 200,000 |
| West Virginia | 1 | 4 | 0 | 2 | 1 | 0 | 0 | 0 | 8 | 172,000 |
| Wisconsin | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 93,000 |
| Wyoming | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 52,500 |
| Alaska | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 36,000 |
| Hawaii | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total: | | | | | | | | | | |
| Plants | 121 | 183 | 82 | 34 | 7 | 5 | 5 | 1 | 438 | |
| Cost, dols | 1,452,000 | 3,019,500 | 1,886,000 | 986,000 | 252,000 | 215,000 | 245,000 | 68,000 | | 8,123,500 |

The above data indicate that 438 plants are needed in 34 States and Alaska. The estimated total cost is $8,123,500. No plants were reported as needed by 14 States. The total population of the 438 communities or groups of communities needing plants is 1,699,207. The average cost of the 438 plants is $18,547 per plant. For the States needing plants, the smallest number needed is 1, for Maine and California; the greatest number of plants needed by any State (Texas) is 47.

For States needing plants, the lowest cost per State is $16,500, for California; the average cost per State (including Alaska) is $232,100; and the highest cost is $907,000, for Georgia. For States needing plants, the total population of the communities or groups of communities needing plants ranges from 3,235 in California to 203,200 in Georgia. The average per State is 48,549.

## DISCUSSION

It should be emphasized that certain of the assumptions which have been made in preparing this inventory should not be interpreted as being recommended limitations of pasteurization plant needs. For example, no estimate of the costs of installing pasteurization plants at existing producer-distributor dairies has been attempted. This omission is due to the fact that it was considered impossible to arrive at satisfactory average cost figures for such installations and to predict

what proportion of the needed plants might be expected to fall in this category. Such plants would usually cost considerably less than the figures given in these estimates, because of reduced total and unit building costs, and because certain equipment as well as delivery trucks and storage and garage space would already be provided. Many of the plants that might be provided to fill the needs shown in this inventory would of course be "farm plants."

It should be emphasized again that this estimate of pasteurization plant needs has not been made on the basis of attempting immediate pasteurization of all the market milk in the United States. Instead, the basis has been the sounder approach of estimating the cost of making pasteurized milk *available* to all communities where it is economically feasible to do so under present conditions, and of recognizing that the pasteurization of all milk sold in these communities is a goal which can only be reached after a period of education.

It must also be recognized that this estimate does not adequately take into account the smaller communities (in general, those towns or groups of towns with populations of less than 2,000) in which the potential market is not thought adequate to enable the smallest plant used in this inventory to operate at a profit. Of course, many such communities would be within reasonable delivery distance of existing or proposed plants. Although many such communities can be served by small plants, such as small producer-distributor plants, the eventual solution to the problem apparently must await the development of more inexpensive pasteurizing equipment of a type which is practical and acceptable to health authorities. In the meantime, consumers who can obtain only raw milk should purchase a high-grade raw milk and should pasteurize it at home in the following simple manner: Place the milk in a vessel over a hot flame and heat to 165° F., stirring constantly; then immediately set the vessel in cold water and continue stirring until cool.

In this article it is not intended to imply that the sole milk sanitation need of the United States is the provision of additional pasteurizing plants.

Obviously, the principal benefit would be to the public health through a reduction in the number of cases and deaths due to milk-borne disease. It would cost only about $8,000,000 to provide the pasteurization plants allowed for in this estimate. While this would not prevent the occurrence of milk-borne disease completely, as has been explained above, it should aid materially in reducing the amount of such disease, which has cost at least $3,000,000 annually for the years 1932–41. Other benefits may be anticipated, however, including those accruing to dairy farmers through higher returns for the sale of milk due to sales increases resulting from greater consumer confidence in the safety of the milk supply.

POSSIBLE METHODS OF MEETING THE NEEDS

It is beyond the scope of this paper to attempt more than a brief consideration of the possible methods of satisfying the needs outlined herein. Based upon the experience of the past, it is logical to predict that in many cases the needed plants will be established by local dairymen or others who perceive the existence of a sound business opportunity. Such action is being encouraged by the increasing demands of consumers for pasteurized milk. The construction of many plants has probably been delayed during the war period because pasteurization equipment utilizes critical materials needed for more important war uses. However, there will undoubtedly be many cases in which persons will be unwilling or unable to establish plants because of the initial cost and the financial risk involved. Therefore, it may be wise to consider the advisability of providing Federal financial assistance to responsible individuals, firms, or cooperatives for this purpose. Apparently there are ample precedents for the use of Federal funds to finance the construction of milk pasteurization plants. One precedent is the use of Federal funds to finance plants for the manufacture of war materials. Another precedent is the use of Federal funds to insure loans made by local banks to finance home construction or remodeling under the Federal Housing Administration program. In the first case the justification was the importance to the national defense and the prosecution of the war; in the second case the justification was the need of stimulating the construction industry and the desirability of providing improved housing. In the case of milk pasteurization plants the justification is the increased safety of the milk supply.

It would seem that the most desirable method of financing might consist of Federal insurance of loans made by local banks by a method such as that used by the Federal Housing Administration. This method would seem to promote the maximum amount of construction with the minimum amount of Federal funds and would permit the maximum amount of local initiative and control with the minimum of Federal restrictions. However, as stated above, the purpose of this article is to point to a need rather than to develop a suggested comprehensive program of action. It will be sufficient to point out that the construction of pasteurization plants could readily be included in any public works program which might be initiated to alleviate ecomomic depression during the post-war period.

Grateful acknowledgment is made of the assistance of the following persons: Passed Assistant Surgeon (R) Burnet M. Davis, for estimating the total cost of medical and other services and the working time lost per case of disease; Assistant Sanitarians (R) Harold Wainess and Clarence Moss for assembling and interpreting the data on localities needing plants; and the various persons in Public Health Service

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# HEALTH OF STUDENT NURSES

## Report of a Study Conducted in a School of Nursing

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### THE HEALTH PROGRAM

During the past 20 years, under the sponsorship of Dr. George O'Hanlon, medical director of the Medical Center School of Nursing, the writer has been engaged in the planning and administration of a comprehensive health program for the student nurses in the Medical Center School of Nursing in Jersey City, N. J. The period covered by this report is from July 1942 to June 1943, inclusive. The average number of student nurses in the school during the year was 300, exclusive of students affiliating from other schools and students who are candidates for an academic degree and not presently resident in the School of Nursing.

Each applicant for admission is given a preadmission health audit, 3 months before her entrance, by 15 senior members of the attending staff of the hospital, each physician confining himself to the field of his specialty. The results of this audit are explained to each applicant and her mother by the health director at an individual preadmission health counsel conference lasting 30 minutes. The correction of every remediable health defect is a condition precedent to acceptance in the school.

Each student is protected against tuberculosis by means of a semiannual tuberculin test until her reaction becomes positive, and by means of quarterly chest roentgenograms. Also, each student is given, during her preclinical period, active immunization against smallpox, diphtheria, typhoid fever, and scarlet fever by means of an increased number of attenuated doses, which obviates the reactions formerly considered a serious objection to the immunization of student nurses.

Throughout the 3-year course, seminar instruction in immunization, personal hygiene, community hygiene, industrial hygiene, and emergencies is given to the students by the health director. Painstaking and sympathetic convalescent health counsel is given to every student who has been hospitalized. The accompanying statistical tables have been compiled from the results of this convalescent health counsel.

As an incentive to the students in the field of personal health, a gold award is offered at graduation and health honor certificates bearing the signature of the medical director are bestowed at regular intervals during the 3-year course. The health program is dynamic and not

static, and the results attained are checked by adequate statistical control.

Credit for such measure of success as this program has attained is given to the farsighted administrative vision and tactical executive ability of Dr. George O'Hanlon, medical director.

## SUMMARY OF FINDINGS

The findings disclosed by the accompanying statistical tables which are of greatest interest and practical value to those who are professionally interested in the health of student nurses may be summarized as follows:

Most student illness occurred during the winter months (table 1).

Most student illness was caused by respiratory diseases (table 2).

Cases of illness requiring only 1 day of hospitalization constituted the largest group (table 3).

Most student illness was attributable to causative factors lying in the field of hospital and nursing school administration (table 4).

Students requiring only one hospitalization constituted the largest group (table 5).

There is no significant difference in the incidence of illness in the various classes of the school (table 6).

While 20 percent of the student body in the classroom had only 8 percent of the total days of disability, 11 percent on surgical assignment had 21 percent of the total days of disability (table 7).

TABLE 1.—*Illness distribution by months*

| Month | Number cases [1] | Percent | Number cases per 1,000 students | Number days disabled [2] | Percent | Number days disabled per 1,000 students |
|---|---|---|---|---|---|---|
| 1942 | | | | | | |
| July | 20 | 6 | 66 | 147 | 7 | 490 |
| August | 12 | 4 | 40 | 101 | 5 | 336 |
| September | 20 | 6 | 66 | 134 | 6 | 446 |
| October | 24 | 7 | 80 | 139 | 7 | 463 |
| November | 27 | 9 | 90 | 214 | 10 | 713 |
| December | 30 | 10 | 100 | 161 | 7 | 536 |
| 1943 | | | | | | |
| January | 40 | 13 | 133 | 242 | 11 | 806 |
| February | 18 | 5 | 60 | 131 | 6 | 436 |
| March | 49 | 15 | 163 | 303 | 14 | 1,010 |
| April | 29 | 9 | 96 | 244 | 11 | 813 |
| May | 25 | 8 | 83 | 184 | 8 | 613 |
| June | 27 | 8 | 90 | 173 | 8 | 577 |
| Total | 321 | 100 | 1,070 | [3] 2,173 | 100 | 7,243 |

[1] A case of illness is the loss of one-half day or more from duty by reason of illness or accident.
[2] Days disabled are days lost from duty by reason of hospitalization for personal illness or subsequent convalescent leave.
[3] Days disabled are the total days lost on account of cases having their onset in the calendar month.

(These definitions apply to all the tables.)

TABLE 2.—*Diagnoses*

| Diagnoses | Number cases | Percent | Number cases per 1,000 students | Number days disabled | Percent | Number days disabled per 1,000 students |
|---|---|---|---|---|---|---|
| Burns | 8 | 2 | 27 | 52 | 2 | 173 |
| Cerebral | 1 | .3 | 3 | 15 | 1 | 50 |
| Contagion | 22 | 7 | 73 | 271 | 12 | 904 |
| Dental | 4 | 1 | 13 | 13 | 1 | 43 |
| Dermatology | 48 | 15 | 160 | 266 | 13 | 887 |
| Ears | 1 | .3 | 3 | 1 | .5 | 3 |
| Eyes | 6 | 2 | 20 | 37 | 1 | 123 |
| Gastro-intestinal | 45 | 14 | 150 | 227 | 11 | 757 |
| Gynecology | 13 | 4 | 44 | 110 | 4 | 367 |
| Heat | 1 | .3 | 3 | 8 | .5 | 36 |
| Orthopedic | 9 | 3 | 30 | 87 | 4 | 290 |
| Respiratory | 151 | 47 | 504 | 1,036 | 48 | 3,453 |
| Ill-defined | 12 | 4 | 40 | 50 | 2 | 167 |
| Total | 321 | 100 | 1,070 | 2,173 | 100 | 7,243 |

TABLE 3.—*Duration of illness*

| Number days | Number cases | Percent | Number cases per 1,000 students | Number days disabled | Percent | Number days disabled per 1,000 students |
|---|---|---|---|---|---|---|
| 0 | 2 | .6 | 7 | 0 | 0 | 0 |
| 1 | 48 | 15.0 | 160 | 48 | 2 | 160 |
| 2 | 31 | 9.6 | 103 | 62 | 3 | 207 |
| 3 | 35 | 11.6 | 117 | 105 | 5 | 350 |
| 4 | 34 | 10.3 | 113 | 136 | 6 | 453 |
| 5 | 24 | 7.6 | 80 | 120 | 6 | 400 |
| 6 | 33 | 10.0 | 110 | 198 | 9 | 660 |
| 7 | 13 | 4.0 | 43 | 91 | 4 | 303 |
| 8 | 13 | 4.0 | 43 | 104 | 5 | 347 |
| 9 | 12 | 3.6 | 40 | 108 | 5 | 360 |
| 10 | 10 | 3.0 | 33 | 109 | 5 | 333 |
| 11 | 10 | 3.0 | 33 | 110 | 5 | 367 |
| 12 | 6 | 2.0 | 20 | 72 | 3 | 240 |
| 13 | 10 | 3.0 | 33 | 130 | 6 | 433 |
| 14 | 6 | 2.0 | 20 | 84 | 4 | 280 |
| 15 | 4 | 1.3 | 13 | 60 | 3 | 200 |
| 16 | 4 | 1.3 | 13 | 64 | 3 | 213 |
| 17 | 4 | 1.3 | 13 | 68 | 3 | 227 |
| 18 | 4 | 1.3 | 13 | 72 | 3 | 240 |
| 20 | 5 | 1.6 | 17 | 100 | 5 | 334 |
| 21 | 2 | .6 | 7 | 42 | 2 | 140 |
| 23 | 2 | .6 | 7 | 46 | 2 | 154 |
| 24 | 1 | .3 | 3 | 24 | 1 | 80 |
| 25 | 2 | .6 | 7 | 50 | 2 | 167 |
| 27 | 1 | .3 | 3 | 27 | 1 | 90 |
| 28 | 2 | .6 | 7 | 56 | 2 | 187 |
| 29 | 1 | .3 | 3 | 29 | 1 | 97 |
| 31 | 1 | .3 | 3 | 31 | 2 | 104 |
| 35 | 1 | .3 | 3 | 35 | 2 | 117 |
| Total | 321 | 100.0 | 1,070 | 2,173 | 100 | 7,243 |

TABLE 4.—*Health faults*

| Health faults | Number cases | Percent | Number cases per 1,000 students | Number days disabled | Percent | Number days disabled per 1,000 students |
|---|---|---|---|---|---|---|
| Administration | 144 | 45 | 480 | 1,105 | 51 | 3,684 |
| Delay | 51 | 16 | 170 | 255 | 11 | 850 |
| Hygiene | 55 | 17 | 184 | 310 | 14 | 1,033 |
| None | 50 | 15 | 166 | 341 | 16 | 1,136 |
| Safety | 21 | 7 | 70 | 162 | 8 | 540 |
| Total | 321 | 100 | 1,070 | 2,173 | 100 | 7,243 |

TABLE 5.—*Repetitious hospitalization*

| Hospitalizations | Number students | Cases | Percent | Number cases per 1,000 students | Number days disabled | Percent | Number days disabled per 1,000 students |
|---|---|---|---|---|---|---|---|
| 1 | 110 | 110 | 34 | 367 | 666 | 31 | 2,220 |
| 2 | 62 | 124 | 39 | 413 | 825 | 40 | 2,750 |
| 3 | 11 | 33 | 10 | 110 | 237 | 11 | 790 |
| 4 | 9 | 36 | 11 | 120 | 248 | 12 | 827 |
| 5 | 2 | 10 | 3 | 33 | 106 | 5 | 353 |
| 8 | 1 | 8 | 3 | 27 | 91 | 1 | 303 |
| Total | 195 | 321 | 100 | 1,070 | 2,173 | 100 | 7,243 |

TABLE 6.—*Classes*

| Classes | Cases | Percent | Number cases per 1,000 students | Number days disabled | Percent | Number days disabled per 1,000 students | Number student nurses in class |
|---|---|---|---|---|---|---|---|
| 1941 | 1 | 1 | ---------- | 11 | 1 | ---------- | ---------- |
| 1942 | 14 | 4 | ---------- | 129 | 6 | ---------- | ---------- |
| 1943 | 41 | 13 | ---------- | 231 | 12 | ---------- | ---------- |
| 1944 | 82 | 26 | 1,171 | 620 | 28 | 8,857 | 70 |
| 1945 | 121 | 37 | 1,476 | 742 | 34 | 9,049 | 82 |
| 1946 | 19 | 6 | 594 | 98 | 4 | 3,064 | 32 |
| 5-year [1] | 43 | 13 | 693 | 342 | 15 | 5,532 | 62 |
| Total | 321 | 100 | ---------- | 2,173 | 100 | ---------- | ---------- |

[1] 5-year students who spend the first 2 years of their residence at the New Jersey State College for Teachers and the following 3 years of residence at the Medical Center School of Nursing are candidates for an academic degree.

TABLE 7.—*Assignments*

| Assignments | Number cases | Percent | Number days disabled | Percent | Number student nurses assigned | Percent |
|---|---|---|---|---|---|---|
| Class room | 38 | 12 | 169 | 8 | 48 | 20.0 |
| Diet kitchen | 6 | 1 | 33 | 1 | 6 | 3.0 |
| Ear, nose, throat | 2 | 1 | 7 | .5 | 2 | 1.0 |
| Emergency | 1 | 1 | 11 | .5 | 1 | .5 |
| Gynecology | 11 | 3 | 129 | 6 | 3 | 1.5 |
| Infirmary | 2 | 1 | 12 | .5 | 1 | .5 |
| Isolation | 27 | 8 | 134 | 6 | 14 | 5.5 |
| Malignancy | 7 | 2 | 63 | 3 | 4 | 2.0 |
| Medical | 58 | 18 | 459 | 21 | 26 | 10.0 |
| Night duty | 16 | 5 | 111 | 5 | 33 | 13.0 |
| Obstetrics | 12 | 4 | 43 | 2 | 21 | 9.0 |
| Operating room | 22 | 7 | 157 | 7 | 14 | 6.0 |
| Orthopedics | 19 | 6 | 148 | 7 | 6 | 3.0 |
| Out-patient | 4 | 1 | 21 | 1 | 6 | 3.0 |
| Pediatrics | 22 | 7 | 148 | 7 | 18 | 7.0 |
| Psychiatry | 3 | 1 | 5 | .5 | 3 | 1.5 |
| Public health | 3 | 1 | 25 | 1 | 1 | .5 |
| Surgical | 60 | 19 | 448 | 21 | 27 | 11.0 |
| Teaching | 2 | 1 | 15 | 1 | 1 | .5 |
| Urology | 6 | 1 | 35 | 1 | 3 | 1.5 |
| Total | 321 | 100 | 2,173 | 100 | 238 | 100.0 |

## MORTALITY IN LARGE CITIES, 1943

A total of 483,599 deaths occurred in a group of 90 large cities in the United States during 1943, as compared with 443,962 deaths in 1942, according to provisional figures recently issued by the Bureau of the Census. This represents an increase of 8.9 percent, as compared with an increase of 1.4 percent in 1942. The largest percentage increases were reported in the East South Central and Middle Atlantic areas, and the smallest in the Pacific and South Atlantic areas.

The number of deaths reported for each week in these cities during 1943 exceeded the average for the corresponding weeks of the 3 preceding years except for 2 weeks in July. A major increase was recorded during the influenza epidemic, beginning with the week ended December 4 and continuing to the end of the year. Both the influenza epidemic during December and the increase in the population of this group of cities contributed to the total increase. Deaths during the last 5 weeks of 1943 in excess of the number reported for the corresponding weeks of 1942 account for more than a quarter and the population growth for about one-tenth of the total increase, leaving 5.5 percent attributable to other factors.

An increase was also reported in the number of infant deaths and in the infant death rate recorded for these cities. The number of infant deaths during 1943 was 10.1 percent greater than the total for 1942, and the provisional infant mortality rate of 35.6 per 1,000 estimated live births was 3.2 percent higher than the provisional rate of 34.5 for 1942.

A rise in total mortality was also reported in a group of 42 States during the first 11 months of 1943, the death rate for this period being 3.9 percent higher than that for the same months of 1942. It is interesting to note that increase in the infant mortality rate for the group of large cities is contrary to the experience of a larger reporting area. The provisional infant mortality rate for 40 States for the first 11 months of 1943 was 8.6 percent lower than that for the corresponding period of 1942.

These provisional mortality figures are from tabulations made on the basis of the place of occurrence, and not by place of incidence. The figures for each city, therefore, include deaths of nonresidents dying in the city, and exclude deaths of residents occurring elsewhere.

| | Provisional | | Final |
|---|---|---|---|
| | 1943 | 1942 | 1942 |
| Total deaths, 90 cities | 483,599 | 443,962 | 449,306 |
| Percentage increase over preceding year's total | 8.9 | 1.4 | ---------- |
| Deaths under 1 year of age | 33,830 | 30,737 | ---------- |
| Deaths under 1 year of age per 1,000 estimated live births | 35.6 | 34.5 | ---------- |
| Percentage increase over preceding year's rate per 1,000 live births | 3.2 | ---------- | ---------- |

## COURT DECISION ON PUBLIC HEALTH

*Venereal disease quarantine upheld.*—(Florida Supreme Court, Division B; *Varholy* v. *Sweat, Sheriff*, 15 So.2d 267; decided October 8, 1943.) A habeas corpus proceeding was brought to secure the petitioner's release from detention under a quarantine order entered by a deputy health officer on the ground that the petitioner had a communicable venereal disease. The petitioner alleged that she was confined in the county jail charged with being drunk and disorderly, that at the hearing before the justice of the peace no evidence was produced showing proper ground to hold her to answer such charge, and that the justice had set her appearance bond in the amount of $500, which amount was excessive. The respondent sheriff filed his return to the writ showing that he was holding the petitioner by virtue of a commitment and an order of quarantine by the health officer. At the hearing the trial judge stated that he would first consider the reasonableness and justness of the quarantine and would later consider the excessiveness of bail on the criminal charge. The health officer testified, among other things, that the petitioner had voluntarily submitted to an examination; that the laboratory reports showed that she had a venereal disease; that the purpose of the quarantine was to remove the infected individual from society for treatment; and that the petitioner, while confined in the county jail, was quarantined therein pending transfer to one of the quarantine hospitals operated by the State board of health for the isolation and treatment of venereally infected persons. There was no testimony of immoral habits on the part of the petitioner. The trial court entered an order to the effect that the evidence showed that the petitioner was infected with gonorrhea, that she had been duly quarantined by the deputy health officer for the duration of such disease, and that said quarantine was reasonable and proper. Accordingly he denied the petition and ordered that the petitioner remain under quarantine for treatment until cured and that upon cure he would then consider the application to reduce the bond under the minor criminal charge.

The petitioner appealed to the Supreme Court of Florida but that court concluded that the action of the lower court was justified by the evidence and affirmed the order appealed from. In its opinion the appellate court pointed out that a section of the State statutes relating to the examination and treatment for venereal diseases of persons confined in any State, county, or city prison was applicable under the evidence and justified the order of the trial court. There was also cited another section which vested the State board of health with authority to make regulations concerning the isolation and treatment of venereally infected persons and the court went on to say that the board had adopted regulations, one of which authorized the health

officer to quarantine infected persons either on the premises where they lived, or in any other place, hospital, or institution in the jurisdiction that may have been provided, and, if no such place had been provided, confinement in the county or city jail under quarantine could be resorted to.

The appellate court took occasion to state that it had recently denied, without opinion, an application for the release of the petitioner on an appearance bond pending disposition of the appeal in the instant case. We might well, said the court, now state our reasons for denying such application. "Our view was that plaintiff-in-error was being held under a quarantine order, which is not a criminal proceeding, and hence not bailable. As soon as plaintiff-in-error is cured and released from quarantine, the court below has very properly announced that she will be promptly released from custody on a nominal bail bond to appear and answer the minor criminal charge for which she was arrested." The court concluded by saying that to grant release on bail to persons isolated and detained on a quarantine order because they have a contagious disease which makes them dangerous to others, or to the public in general, would render quarantine laws and regulations nugatory and of no avail.

## DEATHS DURING WEEK ENDED JANUARY 29, 1944

[From the Weekly Mortality Index, issued by the Bureau of the Census, Department of Commerce]

| | Week ended Jan. 29, 1944 | Corresponding week, 1943 |
|---|---|---|
| Data for 90 large cities of the United States: | | |
| Total deaths | 9,954 | 10,181 |
| Average for 3 prior years | 9,786 | |
| Total deaths, first 4 weeks of year | 45,173 | 41,264 |
| Deaths under 1 year of age | 626 | 732 |
| Average for 3 prior years | 622 | |
| Deaths under 1 year of age, first 4 weeks of year | 2,575 | 2,984 |
| Data from industrial insurance companies: | | |
| Policies in force | 66,242,194 | 65,305,721 |
| Number of death claims | 15,316 | 13,805 |
| Death claims per 1,000 policies in force, annual rate | 12.1 | 11.0 |
| Death claims per 1,000 policies, first 4 weeks of year, annual rate | 12.3 | 11.2 |

# PREVALENCE OF DISEASE

*No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring*

## UNITED STATES

### REPORTS FROM STATES FOR WEEK ENDED FEBRUARY 5, 1944

**Summary**

The incidence of meningococcus meningitis increased during the week. A total of 571 cases was reported, as compared with 527 for the preceding week, a 5-year (1939–43) median of 60, and 330 for the corresponding week last year, which was the largest number reported for the corresponding week of any prior year. For the current week, 326 cases, or 57 percent of the total, were reported in the Middle Atlantic, East North Central, and South Atlantic areas. An aggregate of 318 cases, or 56 percent of the total, was reported in 9 States, as follows (last week's figures in parentheses): *Increases*—New York 64 (56), Ohio 29 (24), Illinois 29 (16), Michigan 31 (29), Virginia 27 (15), Texas 29 (28), California 49 (39); *decreases*—Pennsylvania 35 (41), Missouri 25 (34). No other State reported more than 17 cases. The cumulative total for the first 5 weeks of the year is 2,845, as compared with 1,612 for the same period last year and a 5-year median of 275.

A further decrease in the incidence of influenza was recorded, a total of 14,912 cases being reported, as compared with 22,843 last week, and a 5-year median of 5,667. Of the total for the current week, 10,649 cases, or 71 percent, were reported in the South Atlantic and West South Central States.

The incidence of scarlet fever and measles increased slightly during the current week to 5,365 and 18,648 cases, respectively, as compared with 4,936 and 15,403 for the preceding week. The cumulative figures for the first 5 weeks of the year for these diseases are, respectively, 23 and 38 percent higher than the corresponding 5-year median figures.

A total of 131 cases of typhoid fever was reported, 70 of which occurred in Indiana. An outbreak has been reported in the north central area of the State. Of 384 cases reported to date for the country as a whole, 117 cases occurred in Indiana.

Both current and cumulative figures for diphtheria, poliomyelitis, smallpox, and whooping cough continue below the respective 5-year medians.

Deaths in 89 large cities of the United States totaled 9,455, as compared with 9,937 last week and a 3-year (1941–43) average of 9,736. The total to date is 54,497, as compared with 51,182 for the same period last year.

*Telegraphic morbidity reports from State health officers for the week ended February 5, 1944, and comparison with corresponding week of 1943 and 5-year median*

In these tables a zero indicates a definite report, while leaders imply that, although none was reported, cases may have occurred.

| Division and State | Diphtheria | | | Influenza | | | Measles | | | Meningitis, meningococcus | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Week ended— | | Median 1939–43 | Week ended— | | Median 1939–43 | Week ended— | | Median 1939–43 | Week ended— | | Median 1939–43 |
| | Feb. 5, 1944 | Feb. 6, 1943 | | Feb. 5, 1944 | Feb. 6, 1943 | | Feb. 5, 1944 | Feb. 6, 1943 | | Feb. 5, 1944 | Feb. 6, 1943 | |
| **NEW ENGLAND** | | | | | | | | | | | | |
| Maine | 0 | 1 | 1 | 26 | ------ | 4 | 283 | 12 | 69 | 4 | 11 | 0 |
| New Hampshire | 0 | 0 | 0 | 20 | ------ | ------ | 0 | 23 | 16 | 0 | 1 | 1 |
| Vermont | 0 | 0 | 0 | 51 | ------ | ------ | 97 | 308 | 12 | 1 | 0 | 0 |
| Massachusetts | 2 | 5 | 4 | ------ | ------ | ------ | 351 | 572 | 462 | 17 | 6 | 1 |
| Rhode Island | 0 | 5 | 0 | 25 | ------ | ------ | 275 | 20 | 20 | 4 | 23 | 0 |
| Connecticut | 1 | 1 | 1 | 8 | 17 | 8 | 158 | 506 | 170 | 10 | 1 | 1 |
| **MIDDLE ATLANTIC** | | | | | | | | | | | | |
| New York | 9 | 7 | 16 | [1] 12 | [1] 12 | [1] 19 | 1,244 | 1,205 | 908 | 64 | 39 | 7 |
| New Jersey | 2 | 1 | 8 | 33 | 18 | 42 | 1,029 | 726 | 165 | 17 | 12 | 3 |
| Pennsylvania | 6 | 10 | 11 | 8 | 2 | ------ | 1,757 | 2,846 | 1,553 | 35 | 16 | 5 |
| **EAST NORTH CENTRAL** | | | | | | | | | | | | |
| Ohio | 0 | 13 | 17 | 61 | 14 | 14 | 1,641 | 136 | 136 | 29 | 11 | 2 |
| Indiana | 16 | 7 | 16 | 35 | 8 | 40 | 345 | 321 | 78 | 13 | 6 | 1 |
| Illinois | 21 | 10 | 19 | 54 | 14 | 36 | 716 | 371 | 171 | 29 | 8 | 1 |
| Michigan [3] | 8 | 8 | 8 | 15 | 35 | 21 | 1,297 | 166 | 183 | 31 | 5 | 1 |
| Wisconsin | 0 | 6 | 0 | 245 | 84 | 68 | 1,320 | 641 | 554 | 12 | 8 | 0 |
| **WEST NORTH CENTRAL** | | | | | | | | | | | | |
| Minnesota | 6 | 5 | 3 | 2 | 2 | 2 | 1,011 | 21 | 380 | 4 | 4 | 0 |
| Iowa | 4 | 1 | 4 | 37 | ------ | 7 | 386 | 75 | 103 | 1 | 1 | 0 |
| Missouri | 0 | 8 | 7 | 27 | 3 | 22 | 141 | 147 | 31 | 25 | 13 | 1 |
| North Dakota | 0 | 0 | 3 | 12 | 28 | 28 | 291 | 7 | 13 | 3 | 1 | 0 |
| South Dakota | 1 | 0 | 0 | 4 | 2 | 2 | 137 | 136 | 37 | 1 | 2 | 0 |
| Nebraska | 2 | 4 | 1 | 102 | 38 | ------ | 29 | 95 | 45 | 3 | 2 | 1 |
| Kansas | 6 | 6 | 5 | 82 | 11 | 14 | 258 | 348 | 278 | 6 | 4 | 0 |
| **SOUTH ATLANTIC** | | | | | | | | | | | | |
| Delaware | 2 | 0 | 0 | ------ | ------ | ------ | 13 | 3 | 3 | 1 | 0 | 0 |
| Maryland [3] | 1 | 4 | 4 | 115 | 17 | 61 | 467 | 19 | 25 | 14 | 14 | 0 |
| District of Columbia | 0 | 2 | 2 | 9 | 2 | 5 | 39 | 30 | 18 | 5 | 2 | 0 |
| Virginia | 11 | 12 | 12 | 1,733 | 660 | 1,100 | 669 | 201 | 140 | 27 | 18 | 3 |
| West Virginia | 4 | 5 | 5 | 464 | 23 | 27 | 331 | 5 | 20 | 6 | 2 | 2 |
| North Carolina | 11 | 14 | 16 | 78 | 35 | 80 | 978 | 56 | 152 | 16 | 10 | 1 |
| South Carolina | 3 | 4 | 6 | 1,311 | 659 | 871 | 271 | 23 | 23 | 13 | 10 | 2 |
| Georgia | 2 | 1 | 7 | 227 | 133 | 133 | 240 | 40 | 93 | 8 | 6 | 1 |
| Florida | 2 | 6 | 6 | 16 | 3 | 14 | 78 | 17 | 30 | 6 | 9 | 1 |
| **EAST SOUTH CENTRAL** | | | | | | | | | | | | |
| Kentucky | 2 | 4 | 6 | 668 | 7 | 91 | 115 | 608 | 63 | 11 | 1 | 2 |
| Tennessee | 2 | 11 | 8 | 156 | 71 | 127 | 114 | 204 | 74 | 13 | 4 | 3 |
| Alabama | 8 | 13 | 12 | 482 | 215 | 700 | 274 | 13 | 68 | 16 | 4 | 2 |
| Mississippi [3] | 3 | 4 | 4 | ------ | ------ | ------ | ------ | ------ | ------ | 7 | 7 | 2 |
| **WEST SOUTH CENTRAL** | | | | | | | | | | | | |
| Arkansas | 8 | 5 | 9 | 475 | 203 | 426 | 91 | 201 | 120 | 3 | 1 | 1 |
| Louisiana | 13 | 2 | 8 | 1,266 | 13 | 24 | 21 | 35 | 35 | 12 | 2 | 2 |
| Oklahoma | 5 | 6 | 7 | 567 | 82 | 231 | 63 | 20 | 20 | 4 | 0 | 0 |
| Texas | 42 | 50 | 42 | 4,388 | 1,589 | 1,693 | 476 | 199 | 217 | 29 | 13 | 2 |
| **MOUNTAIN** | | | | | | | | | | | | |
| Montana | 0 | 4 | 4 | 149 | 1 | 25 | 218 | 163 | 163 | 2 | 0 | 0 |
| Idaho | 0 | 1 | 0 | 5 | 1 | 1 | 8 | 278 | 28 | 0 | 0 | 0 |
| Wyoming | 0 | 0 | 0 | 12 | 54 | 54 | 69 | 38 | 38 | 1 | 2 | 1 |
| Colorado | 6 | 15 | 6 | 175 | 93 | 85 | 220 | 366 | 94 | 1 | 0 | 0 |
| New Mexico | 2 | 0 | 2 | 3 | 2 | 8 | 8 | 7 | 31 | 0 | 1 | 0 |
| Arizona | 3 | 0 | 5 | 355 | 56 | 232 | 115 | 12 | 12 | 3 | 0 | 1 |
| Utah [3] | 0 | 1 | 2 | 798 | ------ | 20 | 14 | 271 | 38 | 1 | 2 | 0 |
| Nevada | 0 | 0 | 0 | 114 | 3 | ------ | 3 | 51 | 0 | 1 | 2 | 0 |
| **PACIFIC** | | | | | | | | | | | | |
| Washington | 2 | 3 | 1 | 5 | 1 | 11 | 149 | 915 | 182 | 11 | 11 | 0 |
| Oregon | 5 | 0 | 1 | 93 | 32 | 32 | 75 | 562 | 163 | 2 | 11 | 1 |
| California | 35 | 20 | 20 | 389 | 84 | 175 | 766 | 425 | 428 | 49 | 24 | 1 |
| Total | 256 | 285 | 323 | 14,912 | 4,327 | 5,667 | 18,648 | 13,444 | 13,444 | 571 | 330 | 60 |
| 5 weeks | 1,315 | 1,640 | 1,804 | 276,893 | 21,748 | 22,592 | 68,499 | 49,545 | 49,545 | 2,845 | 1,612 | 275 |

See footnotes at end of table.

*Telegraphic morbidity reports from State health officers for the week ended February 5, 1944, and comparison with corresponding week of 1943 and 5-year median*—Con.

| Division and State | Poliomyelitis | | | Scarlet fever | | | Smallpox | | | Typhoid and paratyphoid fever [1] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Week ended— | | Median 1939–43 | Week ended— | | Median 1939–43 | Week ended— | | Median 1939–43 | Week ended— | | Median 1939–43 |
| | Feb. 5, 1944 | Feb. 6, 1943 | | Feb. 5, 1944 | Feb. 6, 1943 | | Feb. 5, 1944 | Feb. 6, 1943 | | Feb. 5, 1944 | Feb. 6, 1943 | |
| NEW ENGLAND | | | | | | | | | | | | |
| Maine | 0 | 0 | 0 | 46 | 19 | 18 | 0 | 0 | 0 | 0 | 1 | 0 |
| New Hampshire | 0 | 0 | 0 | 12 | 14 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vermont | 0 | 0 | 0 | 15 | 12 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| Massachusetts | 0 | 0 | 0 | 385 | 438 | 205 | 0 | 0 | 0 | 2 | 0 | 1 |
| Rhode Island | 0 | 0 | 0 | 16 | 41 | 10 | 0 | 0 | 0 | 0 | 0 | 0 |
| Connecticut | 0 | 0 | 0 | 97 | 85 | 77 | 0 | 0 | 0 | 0 | 0 | 2 |
| MIDDLE ATLANTIC | | | | | | | | | | | | |
| New York | 1 | 3 | 1 | 439 | 463 | 490 | 0 | 0 | 0 | 7 | 3 | 6 |
| New Jersey | 0 | 0 | 2 | 148 | 100 | 175 | 0 | 0 | 0 | 1 | 3 | 2 |
| Pennsylvania | 0 | 2 | 0 | 362 | 309 | 309 | 0 | 0 | 0 | 2 | 5 | 5 |
| EAST NORTH CENTRAL | | | | | | | | | | | | |
| Ohio | 0 | 0 | 0 | 223 | 391 | 391 | 0 | 3 | 2 | 4 | 0 | 0 |
| Indiana | 2 | 0 | 0 | 158 | 161 | 161 | 1 | 10 | 4 | 70 | 2 | 1 |
| Illinois | 1 | 0 | 2 | 327 | 216 | 387 | 1 | 1 | 2 | 2 | 2 | 2 |
| Michigan [2] | 0 | 1 | 1 | 174 | 111 | 231 | 0 | 0 | 0 | 2 | 2 | 2 |
| Wisconsin | 0 | 0 | 0 | 291 | 254 | 180 | 0 | 0 | 2 | 1 | 0 | 0 |
| WEST NORTH CENTRAL | | | | | | | | | | | | |
| Minnesota | 1 | 1 | 0 | 199 | 76 | 97 | 0 | 0 | 13 | 0 | 0 | 0 |
| Iowa | 0 | 0 | 0 | 185 | 57 | 74 | 1 | 0 | 1 | 0 | 3 | 3 |
| Missouri | 0 | 1 | 0 | 110 | 109 | 109 | 0 | 0 | 1 | 0 | 1 | 1 |
| North Dakota | 0 | 0 | 0 | 40 | 1 | 24 | 0 | 0 | 0 | 0 | 0 | 0 |
| South Dakota | 0 | 0 | 0 | 56 | 20 | 25 | 0 | 1 | 1 | 0 | 0 | 0 |
| Nebraska | 0 | 2 | 0 | 116 | 30 | 30 | 0 | 1 | 1 | 0 | 0 | 0 |
| Kansas | 0 | 3 | 0 | 115 | 81 | 90 | 1 | 3 | 2 | 0 | 0 | 0 |
| SOUTH ATLANTIC | | | | | | | | | | | | |
| Delaware | 0 | 0 | 0 | 8 | 9 | 9 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maryland [2] | 0 | 0 | 0 | 155 | 83 | 65 | 0 | 0 | 0 | 1 | 2 | 1 |
| District of Columbia | 0 | 0 | 0 | 184 | 21 | 19 | 0 | 0 | 0 | 0 | 0 | 0 |
| Virginia | 0 | 0 | 0 | 50 | 38 | 40 | 1 | 0 | 0 | 0 | 2 | 3 |
| West Virginia | 0 | 1 | 0 | 54 | 34 | 50 | 0 | 0 | 0 | 4 | 0 | 0 |
| North Carolina | 1 | 0 | 0 | 57 | 63 | 54 | 0 | 0 | 0 | 0 | 1 | 0 |
| South Carolina | 0 | 0 | 1 | 7 | 8 | 9 | 0 | 0 | 0 | 1 | 3 | 1 |
| Georgia | 0 | 0 | 1 | 15 | 28 | 27 | 1 | 0 | 0 | 3 | 2 | 2 |
| Florida | 1 | 3 | 0 | 17 | 13 | 13 | 0 | 0 | 0 | 7 | 0 | 2 |
| EAST SOUTH CENTRAL | | | | | | | | | | | | |
| Kentucky | 1 | 1 | 1 | 84 | 46 | 84 | 1 | 1 | 1 | 0 | 0 | 0 |
| Tennessee | 0 | 1 | 0 | 36 | 40 | 67 | 1 | 0 | 0 | 1 | 1 | 1 |
| Alabama | 0 | 0 | 0 | 9 | 25 | 21 | 1 | 1 | 0 | 1 | 0 | 2 |
| Mississippi [2] | 0 | 1 | 1 | 2 | 12 | 12 | 1 | 0 | 0 | 5 | 0 | 2 |
| WEST SOUTH CENTRAL | | | | | | | | | | | | |
| Arkansas | 0 | 0 | 0 | 6 | 5 | 10 | 0 | 0 | 0 | 3 | 1 | 2 |
| Louisiana | 1 | 0 | 0 | 10 | 16 | 15 | 0 | 0 | 0 | 3 | 2 | 5 |
| Oklahoma | 1 | 0 | 0 | 75 | 14 | 25 | 0 | 1 | 1 | 2 | 0 | 1 |
| Texas | 2 | 3 | 1 | 76 | 90 | 80 | 2 | 4 | 5 | 3 | 3 | 6 |
| MOUNTAIN | | | | | | | | | | | | |
| Montana | 0 | 0 | 0 | 55 | 14 | 35 | 0 | 0 | 0 | 0 | 0 | 0 |
| Idaho | 0 | 0 | 0 | 40 | 18 | 8 | 0 | 2 | 1 | 0 | 0 | 0 |
| Wyoming | 0 | 0 | 0 | 12 | 70 | 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| Colorado | 0 | 1 | 1 | 73 | 52 | 46 | 0 | 0 | 1 | 0 | 0 | 1 |
| New Mexico | 1 | 0 | 0 | 4 | 4 | 6 | 0 | 0 | 0 | 1 | 0 | 0 |
| Arizona | 0 | 1 | 0 | 12 | 10 | 9 | 0 | 0 | 0 | 0 | 0 | 1 |
| Utah [2] | 2 | 0 | 0 | 166 | 100 | 38 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nevada | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| PACIFIC | | | | | | | | | | | | |
| Washington | 0 | 0 | 1 | 192 | 28 | 32 | 0 | 0 | 0 | 0 | 1 | 1 |
| Oregon | 1 | 0 | 0 | 89 | 16 | 17 | 0 | 0 | 0 | 0 | 3 | 1 |
| California | 6 | 3 | 1 | 361 | 189 | 189 | 1 | 0 | 1 | 5 | 4 | 4 |
| Total | 22 | 28 | 28 | 5,365 | 4,037 | 4,037 | 13 | 28 | 59 | 131 | 48 | 83 |
| 5 weeks | 141 | 164 | 160 | 22,431 | 18,187 | 18,187 | 62 | 155 | 248 | 384 | 249 | 400 |

See footnotes at end of table.

*Telegraphic morbidity reports from State health officers for the week ended February 5, 1944, and comparison with corresponding week of 1943 and 5-year median*—Con.

| Division and State | Whooping cough | | | Week ended Feb. 5, 1944 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Week ended— | | Median 1939–43 | Anthrax | Dysentery | | | Encephalitis, infectious | Leprosy | Rocky Mt. spotted fever | Tularemia | Typhus fever |
| | Feb. 5, 1944 | Feb. 6, 1943 | | | Amebic | Bacillary | Unspecified | | | | | |
| **NEW ENGLAND** | | | | | | | | | | | | |
| Maine | 5 | 114 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| New Hampshire | 0 | 14 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vermont | 33 | 19 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Massachusetts | 87 | 207 | 207 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 |
| Rhode Island | 13 | 27 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Connecticut | 35 | 59 | 74 | 0 | 0 | 12 | 0 | 1 | 0 | 0 | 0 | 0 |
| **MIDDLE ATLANTIC** | | | | | | | | | | | | |
| New York | 158 | 361 | 395 | 0 | 5 | 22 | 0 | 1 | 0 | 0 | 0 | 0 |
| New Jersey | 61 | 143 | 143 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pennsylvania | 103 | 347 | 364 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **EAST NORTH CENTRAL** | | | | | | | | | | | | |
| Ohio | 87 | 248 | 248 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Indiana | 29 | 61 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Illinois | 53 | 161 | 161 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Michigan [1] | 99 | 216 | 232 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wisconsin | 134 | 241 | 241 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **WEST NORTH CENTRAL** | | | | | | | | | | | | |
| Minnesota | 43 | 74 | 65 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Iowa | 30 | 30 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Missouri | 14 | 15 | 28 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 2 |
| North Dakota | 7 | 9 | 15 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| South Dakota | 0 | 15 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nebraska | 3 | 7 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kansas | 56 | 41 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **SOUTH ATLANTIC** | | | | | | | | | | | | |
| Delaware | 3 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maryland [1] | 27 | 47 | 61 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| District of Columbia | 6 | 24 | 11 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Virginia | 117 | 105 | 65 | 0 | 0 | 0 | 51 | 0 | 0 | 0 | 0 | 1 |
| West Virginia | 43 | 67 | 55 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| North Carolina | 151 | 177 | 224 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| South Carolina | 52 | 70 | 71 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 |
| Georgia | 7 | 24 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| Florida | 15 | 12 | 12 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 3 |
| **EAST SOUTH CENTRAL** | | | | | | | | | | | | |
| Kentucky | 71 | 26 | 63 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tennessee | 14 | 76 | 54 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 |
| Alabama | 19 | 26 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 10 |
| Mississippi [1] | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 |
| **WEST SOUTH CENTRAL** | | | | | | | | | | | | |
| Arkansas | 17 | 19 | 19 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| Louisiana | 5 | 3 | 5 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 1 |
| Oklahoma | 2 | 14 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Texas | 144 | 357 | 119 | 0 | 3 | 140 | 0 | 2 | 0 | 0 | 0 | 16 |
| **MOUNTAIN** | | | | | | | | | | | | |
| Montana | 10 | 32 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Idaho | 12 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wyoming | 7 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Colorado | 46 | 19 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| New Mexico | 3 | 19 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Arizona | 18 | 1 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Utah [2] | 21 | 25 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nevada | 2 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PACIFIC** | | | | | | | | | | | | |
| Washington | 73 | 20 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Oregon | 38 | 12 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| California | 81 | 250 | 250 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| Total | 2,054 | 3,856 | 4,246 | 1 | 18 | 184 | 56 | 10 | 0 | 0 | 11 | 49 |
| 5 weeks | 9,123 | 19,739 | 21,336 | 4 | 117 | 1,199 | 270 | 44 | 3 | 0 | 65 | 248 |
| 5 weeks, 1943 | | | | 8 | 91 | 708 | 177 | 48 | 4 | 1 | 109 | 317 |

[1] New York City only.
[2] Period ended earlier than Saturday.
[3] Including paratyphoid fever cases reported separately, as follows: New Jersey, 1; New York, 2; Georgia, 1; Florida, 1.

## WEEKLY REPORTS FROM CITIES

*City reports for week ended Jan. 22, 1944*

This table lists the reports from 86 cities of more than 10,000 population distributed throughout the United States, and represents a cross section of the current urban incidence of the diseases included in the table.

| | Diphtheria cases | Encephalitis, infectious, cases | Influenza | | Measles cases | Meningitis, meningococcus, cases | Pneumonia deaths | Poliomyelitis cases | Scarlet fever cases | Smallpox cases | Typhoid and paratyphoid fever cases | Whooping cough cases |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases | Deaths | | | | | | | | |
| **NEW ENGLAND** | | | | | | | | | | | | |
| **Maine:** | | | | | | | | | | | | |
| Portland | 0 | 0 | ------ | 0 | 6 | 0 | 7 | 0 | 3 | 0 | 0 | 3 |
| **New Hampshire:** | | | | | | | | | | | | |
| Concord | 0 | 0 | ------ | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| **Vermont:** | | | | | | | | | | | | |
| Barre | 0 | 0 | ------ | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Massachusetts:** | | | | | | | | | | | | |
| Boston | 1 | 0 | ------ | 4 | 51 | 12 | 27 | 0 | 61 | 0 | 0 | 24 |
| Fall River | 0 | 0 | ------ | 1 | 0 | 0 | 1 | 0 | 6 | 0 | 0 | 6 |
| Springfield | 0 | 0 | ------ | 0 | 85 | 1 | 0 | 0 | 7 | 0 | 0 | 10 |
| Worcester | 0 | 0 | ------ | 0 | 2 | 1 | 9 | 0 | 53 | 0 | 0 | 5 |
| **Rhode Island:** | | | | | | | | | | | | |
| Providence | 0 | 2 | 3 | 1 | 116 | 6 | 3 | 0 | 7 | 0 | 0 | 9 |
| **Connecticut:** | | | | | | | | | | | | |
| Bridgeport | 0 | 0 | ------ | 0 | 3 | 1 | 2 | 0 | 9 | 0 | 0 | 0 |
| Hartford | 1 | 0 | 1 | 0 | 1 | 3 | 5 | 1 | 6 | 0 | 0 | 0 |
| New Haven | 0 | 0 | ------ | 1 | 3 | 3 | 1 | 0 | 10 | 0 | 0 | 0 |
| **MIDDLE ATLANTIC** | | | | | | | | | | | | |
| **New York:** | | | | | | | | | | | | |
| Buffalo | 0 | 0 | ------ | 1 | 5 | 4 | 12 | 1 | 15 | 0 | 0 | 3 |
| New York | 10 | 2 | 15 | 8 | 533 | 42 | 108 | 0 | 216 | 0 | 0 | 46 |
| Rochester | 0 | 0 | ------ | 1 | 1 | 2 | 4 | 0 | 1 | 0 | 0 | 7 |
| Syracuse | 0 | 0 | ------ | 0 | 0 | 0 | 1 | 0 | 6 | 0 | 0 | 19 |
| **New Jersey:** | | | | | | | | | | | | |
| Camden | 1 | 0 | 2 | 3 | 0 | 1 | 2 | 0 | 13 | 0 | 0 | 1 |
| Newark | 0 | 0 | 9 | 1 | 30 | 4 | 14 | 0 | 21 | 0 | 1 | 11 |
| Trenton | 0 | 0 | 3 | 0 | 1 | 0 | 4 | 0 | 6 | 0 | 0 | 0 |
| **Pennsylvania:** | | | | | | | | | | | | |
| Philadelphia | 2 | 0 | 21 | 21 | 8 | 14 | 51 | 0 | 53 | 0 | 0 | 6 |
| Pittsburgh | 0 | 0 | 9 | 8 | 0 | 1 | 19 | 0 | 21 | 0 | 1 | 5 |
| Reading | 0 | 0 | 5 | 1 | 4 | 0 | 2 | 0 | 4 | 0 | 0 | 4 |
| **EAST NORTH CENTRAL** | | | | | | | | | | | | |
| **Ohio:** | | | | | | | | | | | | |
| Cincinnati | 1 | 0 | 7 | 9 | 5 | 4 | 9 | 0 | 42 | 0 | 0 | 9 |
| Cleveland | 0 | 0 | 9 | 3 | 443 | 6 | 14 | 0 | 69 | 0 | 1 | 27 |
| Columbus | 0 | 0 | 5 | 5 | 39 | 0 | 5 | 0 | 17 | 0 | 0 | 3 |
| **Indiana:** | | | | | | | | | | | | |
| Fort Wayne | 0 | 0 | ------ | 1 | 53 | 0 | 5 | 0 | 0 | 0 | 0 | 0 |
| Indianapolis | 5 | 0 | ------ | 6 | 5 | 5 | 7 | 0 | 43 | 0 | 0 | 7 |
| South Bend | 0 | 0 | ------ | 0 | 13 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| Terre Haute | 2 | 0 | ------ | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 0 |
| **Illinois:** | | | | | | | | | | | | |
| Chicago | 1 | 0 | 10 | 4 | 28 | 11 | 33 | 0 | 91 | 0 | 0 | 35 |
| Springfield | 0 | 0 | ------ | 0 | 48 | 0 | 2 | 0 | 4 | 0 | 0 | 0 |
| **Michigan:** | | | | | | | | | | | | |
| Detroit | 8 | 0 | 25 | 3 | 23 | 7 | 20 | 0 | 56 | 0 | 1 | 23 |
| Flint | 0 | 0 | ------ | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| Grand Rapids | 0 | 0 | ------ | 1 | 120 | 1 | 2 | 0 | 10 | 0 | 0 | 1 |
| **Wisconsin:** | | | | | | | | | | | | |
| Kenosha | 0 | 0 | ------ | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 3 |
| Milwaukee | 0 | 0 | 8 | 8 | 14 | 2 | 8 | 0 | 51 | 0 | 0 | 11 |
| Racine | 0 | 0 | ------ | 0 | 2 | 0 | 0 | 0 | 7 | 0 | 0 | 7 |
| Superior | 0 | 0 | ------ | 0 | 46 | 0 | 0 | 0 | 9 | 0 | 0 | 0 |
| **WEST NORTH CENTRAL** | | | | | | | | | | | | |
| **Minnesota:** | | | | | | | | | | | | |
| Duluth | 0 | 0 | ------ | 0 | 8 | 0 | 2 | 0 | 20 | 0 | 0 | 10 |
| Minneapolis | 0 | 0 | ------ | 3 | 133 | 2 | 4 | 0 | 29 | 0 | 0 | 9 |
| St. Paul | 0 | 0 | ------ | 1 | 98 | 2 | 5 | 0 | 43 | 0 | 0 | 8 |
| **Missouri:** | | | | | | | | | | | | |
| Kansas City | 1 | 0 | 1 | 2 | 4 | 1 | 10 | 0 | 30 | 0 | 0 | 2 |
| St. Joseph | 0 | 0 | ------ | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 |
| St. Louis | 0 | 0 | 9 | 5 | 45 | 4 | 18 | 0 | 23 | 0 | 0 | 6 |
| **Nebraska:** | | | | | | | | | | | | |
| Omaha | 2 | 0 | ------ | 1 | 1 | 0 | 7 | 0 | 25 | 0 | 0 | 0 |
| **Kansas:** | | | | | | | | | | | | |
| Topeka | 0 | 0 | ------ | 2 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 2 |
| Wichita | 0 | 0 | 2 | 0 | 48 | 0 | 4 | 0 | 4 | 0 | 0 | 0 |

*City reports for week ended Jan. 22, 1944*—Continued

| | Diphtheria cases | Encephalitis, Infectious, cases | Influenza | | Measles cases | Meningitis, meningococcus, cases | Pneumonia deaths | Poliomyelitis cases | Scarlet fever cases | Smallpox cases | Typhoid and paratyphoid fever cases | Whooping cough cases |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases | Deaths | | | | | | | | |
| **SOUTH ATLANTIC** | | | | | | | | | | | | |
| Delaware: | | | | | | | | | | | | |
| Wilmington | 1 | 0 | ------ | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maryland: | | | | | | | | | | | | |
| Baltimore | 4 | 0 | 15 | 3 | 102 | 9 | 36 | 0 | 36 | 0 | 0 | 7 |
| Cumberland | 0 | 0 | ------ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Frederick | 0 | 0 | ------ | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| District of Columbia: | | | | | | | | | | | | |
| Washington | 2 | 0 | 44 | 0 | 36 | 4 | 12 | 0 | 50 | 0 | 0 | 2 |
| Virginia: | | | | | | | | | | | | |
| Lynchburg | 0 | 0 | 43 | 1 | 15 | 1 | 3 | 0 | 0 | 0 | 0 | 5 |
| Richmond | 0 | 0 | 4 | 2 | 17 | 7 | 6 | 0 | 5 | 0 | 1 | 0 |
| Roanoke | 0 | 0 | ------ | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| West Virginia: | | | | | | | | | | | | |
| Charleston | 0 | 0 | 1 | 0 | 7 | 0 | 0 | 0 | 5 | 0 | 0 | 1 |
| Wheeling | 0 | 0 | 1 | 2 | 1 | 1 | 1 | 0 | 3 | 0 | 0 | 0 |
| North Carolina: | | | | | | | | | | | | |
| Winston-Salem | 0 | 0 | ------ | 0 | 60 | 0 | 1 | 0 | 0 | 0 | 0 | 3 |
| South Carolina: | | | | | | | | | | | | |
| Charleston | 0 | 0 | 105 | 3 | 5 | 1 | 2 | 0 | 1 | 0 | 0 | 0 |
| Georgia: | | | | | | | | | | | | |
| Atlanta | 0 | 0 | 90 | 2 | 12 | 1 | 5 | 0 | 5 | 0 | 0 | 0 |
| Brunswick | 0 | 0 | 4 | ------ | 82 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| Savannah | 0 | 0 | 37 | 2 | 0 | 4 | 6 | 0 | 0 | 0 | 0 | 0 |
| Florida: | | | | | | | | | | | | |
| Tampa | 0 | 0 | 15 | 1 | 1 | 3 | 2 | 0 | 3 | 0 | 0 | 0 |
| **EAST SOUTH CENTRAL** | | | | | | | | | | | | |
| Tennessee: | | | | | | | | | | | | |
| Memphis | 0 | 1 | 28 | 5 | 1 | 6 | 6 | 0 | 7 | 0 | 1 | 24 |
| Nashville | 0 | 0 | 36 | 4 | 3 | 0 | 7 | 0 | 9 | 0 | 0 | 0 |
| Alabama: | | | | | | | | | | | | |
| Birmingham | 0 | 0 | 92 | 1 | 8 | 2 | 7 | 0 | 4 | 0 | 0 | 4 |
| Mobile | 1 | 0 | 35 | 6 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| **WEST SOUTH CENTRAL** | | | | | | | | | | | | |
| Arkansas: | | | | | | | | | | | | |
| Little Rock | 0 | 0 | 7 | 1 | 8 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Louisiana: | | | | | | | | | | | | |
| New Orleans | 3 | 0 | 14 | 5 | 3 | 4 | 19 | 3 | 3 | 0 | 2 | 0 |
| Shreveport | 0 | 0 | ------ | 4 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 |
| Texas: | | | | | | | | | | | | |
| Dallas | 2 | 0 | 2 | 2 | 4 | 0 | 8 | 0 | 2 | 0 | 0 | 0 |
| Galveston | 1 | 0 | 429 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 1 | 0 |
| Houston | 2 | 0 | ------ | 6 | 6 | 4 | 8 | 0 | 3 | 0 | 1 | 0 |
| San Antonio | 2 | 0 | 8 | 6 | 7 | 3 | 10 | 0 | 0 | 0 | 0 | 1 |
| **MOUNTAIN** | | | | | | | | | | | | |
| Montana: | | | | | | | | | | | | |
| Billings | 0 | 0 | ------ | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| Great Falls | 0 | 0 | 130 | 0 | 7 | 1 | 0 | 0 | 14 | 0 | 0 | 0 |
| Helena | 0 | 0 | ------ | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Missoula | 0 | 0 | 51 | 1 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 |
| Idaho: | | | | | | | | | | | | |
| Boise | 0 | 0 | 83 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 2 |
| Colorado: | | | | | | | | | | | | |
| Denver | 1 | 0 | 10 | 1 | 18 | 1 | 5 | 0 | 12 | 0 | 0 | 16 |
| Pueblo | 0 | 0 | ------ | 1 | 78 | 0 | 2 | 0 | 1 | 0 | 0 | 11 |
| **PACIFIC** | | | | | | | | | | | | |
| Washington: | | | | | | | | | | | | |
| Seattle | 0 | 0 | ------ | 5 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 |
| Spokane | 0 | 0 | 2 | 1 | 54 | 0 | 1 | 0 | 29 | 0 | 0 | 0 |
| Tacoma | 1 | 0 | ------ | 3 | 3 | 0 | 0 | 0 | 4 | 0 | 0 | 1 |
| California: | | | | | | | | | | | | |
| Los Angeles | 6 | 0 | 91 | 7 | 63 | 6 | 13 | 1 | 44 | 0 | 0 | 4 |
| Sacramento | 0 | 0 | 16 | 1 | 2 | 4 | 4 | 0 | 3 | 0 | 0 | 0 |
| San Francisco | 0 | 0 | 89 | 2 | 16 | 6 | 18 | 0 | 18 | 0 | 0 | 3 |
| Total | 61 | 5 | 1,626 | 184 | 2,545 | 211 | 658 | 6 | 1,369 | 0 | 10 | 406 |
| Corresponding week, 1943 | 69 | 2 | 212 | 53 | 2,665 | 107 | 621 | 1 | 1,236 | 1 | 13 | 1,200 |
| Average, 1939–43 | 100 | ------ | 2,717 | [1] 65 | [2] 2,629 | ------ | [1] 588 | ------ | 1,213 | 13 | 16 | 1,136 |

[1] 3-year average, 1941–43. [2] 5-year median.

*Dysentery, amebic.*—Cases: New York, 4.

*Dysentery, bacillary.*—Cases: Providence, 3; New York, 6; Detroit, 1; Charleston, S. C., 2; Tampa, 1; Los Angeles, 2.

*Dysentery, unspecified.*—Cases: Cincinnati, 1; San Antonio, 2.

*Typhus fever.*—Cases: Savannah, 1; New Orleans, 2; San Antonio, 1.

*Rates (annual basis) per 100,000 population, by geographic groups, for the 86 cities in the preceding table (estimated population, 1942, 34,493,600)*

| | Diphtheria case rates | Encephalitis, infectious, case rates | Influenza | | Measles case rates | Meningitis, meningococcus, case rates | Pneumonia death rates | Poliomyelitis case rates | Scarlet fever case rates | Smallpox case rates | Typhoid and paratyphoid fever case rates | Whooping cough case rates |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Case rates | Death rates | | | | | | | | |
| New England | 5.0 | 5.0 | 10 | 19.9 | 668 | 67.3 | 137 | 2.5 | 406 | 0.0 | 0.0 | 142 |
| Middle Atlantic | 5.8 | 0.9 | 29 | 19.7 | 260 | 30.4 | 97 | 0.4 | 159 | 0.0 | 0.9 | 46 |
| East North Central | 10.0 | 0.0 | 37 | 23.4 | 493 | 22.3 | 64 | 0.0 | 237 | 0.0 | 1.2 | 74 |
| West North Central | 5.9 | 0.0 | 24 | 27.8 | 668 | 19.8 | 113 | 0.0 | 349 | 0.0 | 0.0 | 73 |
| South Atlantic | 12.2 | 0.0 | 625 | 27.8 | 616 | 53.9 | 132 | 0.0 | 190 | 0.0 | 1.7 | 31 |
| East South Central | 6.0 | 6.0 | 1,138 | 95.3 | 71 | 47.6 | 137 | 0.0 | 119 | 0.0 | 6.0 | 167 |
| West South Central | 29.4 | 0.0 | 1,353 | 70.6 | 82 | 32.4 | 185 | 8.8 | 26 | 0.0 | 11.8 | 3 |
| Mountain | 10.6 | 0.0 | 2,903 | 31.8 | 1,102 | 21.2 | 127 | 0.0 | 350 | 0.0 | 0.0 | 307 |
| Pacific | 12.3 | 0.0 | 347 | 33.3 | 242 | 28.0 | 81 | 1.8 | 172 | 0.0 | 0.0 | 14 |
| Total | 9.2 | 0.8 | 246 | 27.9 | 404 | 32.0 | 100 | 0.9 | 208 | 0.0 | 1.5 | 62 |

## TERRITORIES AND POSSESSIONS

### Hawaii Territory

*Plague (human).*—Under date of January 26, 1944, a case of plague in a 12-year-old girl, with onset of illness on January 15, 1944, resulting in death on January 19, has been reported from the vicinity of Honokaa, Hamakua District, Island of Hawaii, T. H. Diagnosis has been confirmed. The father of this girl was reported to be ill with the disease, as diagnosed clinically.

*Plague (rodent).*—Rats proved positive for plague have been reported in Hamakua District, Island of Hawaii, T. H., as follows:

| Date found | Number of rats found | Location | Date found | Number of rats found | Location |
|---|---|---|---|---|---|
| Nov. 27, 1943 | 1 | Paauhau area. | Dec. 20, 1943 | 1 | Paauhau area. |
| Nov. 29, 1943 | 2 | Do. | Dec. 22, 1943 | 1 | Kukuihaele area. |
| Dec. 6, 1943 | 1 | Do. | Jan. 6, 1944 | 1 | Do. |
| Dec. 10, 1943 | 2 | Kukuihaele area. | Jan. 7, 1944 | 1 | Do. |
| Dec. 14, 1943 | 1 | Do. | Jan. 12, 1944 | 1 | Do. |
| Dec. 17, 1943 | 1 | Kapulena area. | | | |

# FOREIGN REPORTS

## CANADA

*Provinces—Communicable diseases—Week ended January 8, 1944.*—During the week ended January 8, 1944, cases of certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

| Disease | Prince Edward Island | Nova Scotia | New Brunswick | Quebec | Ontario | Manitoba | Saskatchewan | Alberta | British Columbia | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Chickenpox | ---------- | 18 | ---------- | 97 | 412 | 39 | 59 | 164 | 103 | 892 |
| Diphtheria | ---------- | 6 | 6 | 72 | 2 | ---------- | 3 | 5 | ---------- | 94 |
| German measles | ---------- | ---------- | ---------- | 3 | 13 | ---------- | 4 | 9 | 4 | 33 |
| Influenza | 3 | 171 | 1 | ---------- | 766 | 2 | ---------- | ---------- | 818 | 1,761 |
| Measles | ---------- | 7 | ---------- | 83 | 270 | 1 | 15 | 91 | 28 | 495 |
| Meningitis, meningococcus | ---------- | 1 | ---------- | 2 | 4 | ---------- | ---------- | ---------- | 2 | 9 |
| Mumps | ---------- | 4 | ---------- | 56 | 160 | 19 | 2 | 28 | 48 | 317 |
| Poliomyelitis | ---------- | ---------- | ---------- | 1 | 1 | ---------- | ---------- | 2 | ---------- | 4 |
| Scarlet fever | ---------- | 10 | 4 | 40 | 163 | 28 | 12 | 49 | 14 | 320 |
| Tuberculosis (all forms) | ---------- | 20 | 7 | 10 | 38 | 14 | ---------- | 5 | 27 | 121 |
| Typhoid and paratyphoid fever | ---------- | ---------- | ---------- | 2 | 1 | ---------- | ---------- | ---------- | ---------- | 3 |
| Whooping cough | ---------- | 7 | ---------- | 16 | 70 | 1 | 14 | 1 | 13 | 122 |

## CUBA

*Provinces—Notifiable diseases—4 weeks ended January 1, 1944.*—During the 4 weeks ended January 1, 1944, cases of certain notifiable diseases were reported in the Provinces of Cuba as follows:

| Disease | Pinar del Rio | Habana[1] | Matanzas | Santa Clara | Camaguey | Oriente | Total |
|---|---|---|---|---|---|---|---|
| Cancer | ---------- | 1 | 1 | ---------- | 2 | 8 | 12 |
| Chickenpox | ---------- | ---------- | 1 | ---------- | ---------- | 1 | 2 |
| Diphtheria | ---------- | 38 | 6 | 1 | ---------- | 2 | 47 |
| Hookworm disease | ---------- | 27 | ---------- | ---------- | ---------- | ---------- | 27 |
| Leprosy | ---------- | ---------- | ---------- | ---------- | ---------- | 1 | 1 |
| Malaria | 49 | 12 | 16 | 29 | 21 | 447 | 574 |
| Measles | 10 | 39 | ---------- | 1 | ---------- | 1 | 51 |
| Poliomyelitis | ---------- | ---------- | ---------- | ---------- | ---------- | 1 | 1 |
| Scarlet fever | ---------- | 1 | ---------- | ---------- | ---------- | ---------- | 1 |
| Tuberculosis | 10 | 8 | 8 | 17 | 1 | 27 | 71 |
| Typhoid fever | 9 | 44 | 9 | 16 | 9 | 18 | 105 |
| Whooping cough | 1 | ---------- | ---------- | ---------- | ---------- | ---------- | 1 |

[1] Includes the city of Habana.

## JAMAICA

*Notifiable diseases—4 weeks ended January 15, 1944.*—During the 4 weeks ended January 15, 1944, cases of certain notifiable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

| Disease | Kingston | Other localities | Disease | Kingston | Other localities |
|---|---|---|---|---|---|
| Cerebrospinal meningitis | 1 | 1 | Erysipelas | 1 | 1 |
| Chickenpox | 2 | 8 | Leprosy | | 3 |
| Diphtheria | 2 | 4 | Tuberculosis | 23 | 54 |
| Dysentery | 4 | 4 | Typhoid fever | 7 | 47 |

## REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK

NOTE.—Except in cases of unusual prevalence, only those places are included which had not previously reported any of the above-mentioned diseases, except yellow fever, during the current year. All reports of yellow fever are published currently.

A cumulative table showing the reported prevalence of these diseases for the year to date is published in the PUBLIC HEALTH REPORTS for the last Friday in each month.

(Few reports are available from the invaded countries of Europe and other nations in war zones.)

### Plague

*Belgian Congo—Stanleyville Province.*—During the week ended January 22, 1944, 3 deaths from plague including 1 death from septicemic plague were reported in the villages of Kalinda and Komba, Stanleyville Province, Belgian Congo.

*Egypt.*—Plague has been reported in Egypt as follows: week ended January 8, 1944, Port Said, 1 case, 1 death; Suez, 22 cases, 18 deaths.

*Morocco—Casablanca.*—During the period December 11–20, 1943, 1 case of plague was reported in Casablanca, Morocco.

*Senegal—Tivaouane—Saou.*—During the period November 21–30, 1943, 7 deaths from suspected plague, 2 of which have been confirmed, were reported in the village of Saou, subdivision of Tivaouane, Senegal.

### Smallpox

*Egypt—Port Said.*—A report dated January 18, 1944, states that on this date 20 cases of smallpox exist in Port Said, Egypt. One death from smallpox has been reported since January 1, 1944.

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